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The Analysis of TRICARE Navy Obstetric Delivery Costs within Continental United States Military Treatment Facilities

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THE ANALYSIS OF TRICARE NAVY OBSTETRIC DELIVERY COSTS WITHIN CONTINENTAL UNITED STATES MILITARY TREATMENT FACILITIES

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ABSTRACT

Navy medicine spends approximately $75 million on purchased obstetric (OB) care for Navy personnel and their dependents, a sum that continues to increase each year. The purpose of this research is to compare the cost of Navy OB medical care under TRICARE Prime (civilian sector) with similar care provided in four representative Navy Medical Treatment Facilities (MTF). Specifically, the study will examine (1) the quantity of selected deliveries in TRICARE and four specific MTF catchment areas; (2) the average delivery cost for the different types of Purchased Care (PC) deliveries, and (3) best practice techniques to increase the amount of Direct Care (DC) deliveries care in Navy Medicine. The goal of this study is to compare the benefits and drawbacks of each system to gain insights for providing better and more cost-effective OB care in the Navy.

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LIST OF ACRONYMS AND ABBREVIATIONS

AHLTA	Armed Forces Health Longitudinal Technology Application
A/SSP	Acquisition Source Selection Plan
AM & S	Acquisition Management and Support Directorate
ART	Assistant Reporting Tool (Software)
ASD (HA)	Assistant Secretary of Defense for Health Affairs
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
COI	Course of Instruction
DEERS	Defense Eligibility Reporting Service
DFARS	Department of Defense FAR Supplement
DHP	Defense Health Program
DMHRSi	Defense Medical Human Resource System Internet
DoD	Department of Defense
DRG	Diagnostic Related Group
FAR	Federal Acquisition Regulations
FHOC	Fleet Hospital Operational Training Command
FY	Fiscal Year
GAO	Government Accountability Office
GMF	Global Maternity Fee
GWOT	Global War on Terrorism
HMO	Health Maintenance Organization

HCUP	Health-Care Cost and Utilization Project
LDRP	Labor, Delivery, Recovery, and Post Partum
LPN	Licensed Practical Nurse
LVN	Licensed Vocational Nurse
M2	Military Health System Management Analysis and Reporting Tool (Software)
MARDIV	Marine Division
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCRD	Marine Corps Recruiting Depot
MCSC	Managed Care Support Contractors
MEF	Marine Expeditionary Force
MEPRS	Medical Expense and Performance Reporting System
MLG	Marine Logistics Group
MIU	Maternal Infant Unit
MTF	Military Treatment Facilities
NAB	Naval Amphibious Base
NAF	Naval Air Field
NAS	Naval Air Station
NAVSPECWARCOM	Naval Special Warfare Command
NH	Naval Hospital
NOB	Naval Operations Base
NSA	Naval Support Activity

NTC	National Training Center
NDAA	National Defense Authorization Act
NHCL	Naval Hospital Camp Lejeune
NHCP	Naval Hospital Camp Pendleton
NICU	Neonatal Intensive Care Unit
NMCP	Navy Medical Center Portsmouth
NMCSD	Navy Medical Center San Diego
OB	Obstetrics
OR	Operating Room
PCM	Primary Care Manager
TAM	TRICARE Acquisition Manual
TMA	TRICARE Management Activity
TRO	TRICARE Regional Office
USD (P&R)	Under Secretary of Defense for Personnel and Readiness

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I. INTRODUCTION

A. PURPOSE/SCOPE

If Navy personnel or their dependents need obstetric (OB) care, they can receive it either in a Navy medical treatment facility (MTF) or by a civilian in the private sector. If care is received in an MTF, it is called direct care (DC). If care is received by a civilian in the private sector, it is called purchased care (PC). According to Timothy Ward of the Navy's Bureau of Medicine and Surgery (BUMED) in Washington D.C.:

> The largest "product line" of Navy medicine remains Obstetrics: women giving birth[1]. Each year, approximately 22,000 beneficiaries living in Navy catchment areas give birth (as defined by patients discharged from Diagnostic Related Groups (DRG) 370–375). Approximately 24% of these births are to active duty Navy women, 71% are to families of active duty members, and 4% consists of daughters of retirees. The remaining 1% includes foreign military members, diplomats, and medically retired females.
>
> Prior to FY 2000, the majority of these births took place within Navy MTFs. However, over the past eight years or so an increasing number of beneficiaries are choosing to give birth in private sector hospitals. In FY 2008, approximately one third or 7,000 of these births were provided in the private sector at a cost of over $75 million [to the Navy]. At the same time, several Navy hospitals have been converted to clinics (i.e., Cherry Point) and others have been downsized to include the elimination of inpatient obstetrical services (i.e., Naval Hospital Beaufort). The ability of Navy Medicine to meet the obstetrical and related needs of our beneficiary population well into the future is diminishing while the cost to purchase these services is increasing dramatically.

As indicated in Table 1, there has been approximately a 50% growth in OB costs from FY 2006–2008 for the four MTFs with the most deliveries.

[1] A baby born vaginally is called a birth, while a baby born by cesarean section is called a delivery. For the purpose of this research, both deliveries and births will be referred to as deliveries. All delivery numbers refer to the mother and not the number of babies born (e.g., if one mother has twins, it is counted as one delivery, total).

Table 1. PC Cost Growth from FY 2006–2008

MTF	2006	2007	2008
NH CAMP LEJEUNE	$3,505,785	$3,763,010	$5,006,504
NH CAMP PENDLETON	$1,385,767	$1,909,839	$2,873,479
NMC PORTSMOUTH	$2,701,822	$3,849,373	$2,895,186
NMC SAN DIEGO	$874,219	$1,175,309	$2,082,320
Grand Total	$8,467,593	$10,697,531	$12,857,489

The Total Cost of PC deliveries, including those deliveries out of the catchment area, for DRGs 370-375 and 379-382.

The purpose of this research is to compare the cost of Navy OB medical care under TRICARE Prime (civilian sector) with similar care provided in four representative Navy Medical Treatment Facilities (MTF). Specifically, the study will examine (1) the quantity of selected deliveries in TRICARE and four specific MTF catchment areas; (2) the average delivery cost for the different types of Purchased Care (PC) deliveries, and (3) best practice techniques to increase the amount of Direct Care (DC) deliveries care in Navy Medicine. The goal of this study is to compare the benefits and drawbacks of each system to gain insights for providing better and more cost-effective OB care in the Navy.

B. RESEARCH QUESTIONS

1 Primary Question

- Are there methods or opportunities to reduce OB costs to the Navy?

2. Secondary Questions

- Do Navy MTFs have standardized business practices for OB care?
- Do OB departments use decision tools when assigning patients to either the purchased care (PC) or direct care (DC) market?
- Are there business practices in individual Navy MTFs that could benefit Navy OB medicine as a whole?

C. METHODOLOGY

This study used a mix of quantitative and qualitative methods in its data analysis. Data was collected using open literature (i.e., Department of Defense (DoD) policies, Navy Medicine Regulations, Government Accountability Office (GAO) reports, TRICARE instructions), interviews, site visits, and the Military Health System Management Analysis and Reporting Tool (M2).

1. Military Treatment Facility (MTF) Selection Process

a. Delivery Data Pull

The researchers pulled all delivery data from M2. BUMED considers the data in M2 to be very accurate. An analyst at BUMED in Washington, DC, pulled this data on 2 June 2009. The original data query consisted of 15 continental United States (CONUS) Navy MTFs (see Table 2).

Table 2. CONUS Navy MTF Data Pull for FY 2006–2008

MTF	2006 Deliveries	2007 Deliveries	2008 Deliveries	Deliveries Grand Total	2008 Enrollment
NMC PORTSMOUTH	4,605	5,202	5,085	15,661	108,906
NMC SAN DIEGO	3,723	3,823	3,702	11,302	97,987
NH CAMP LEJEUNE	2,650	2,743	2,908	7,890	34,107
NH CAMP PENDLETON	2,320	2,491	2,655	7,510	51,250
NH JACKSONVILLE	1,830	1,821	1,592	5,374	61,917
NNMC BETHESDA	968	984	878	2,850	42,975
NH BREMERTON	802	823	787	2,496	34,651
NH CHARLESTON	955	986	266	2,427	15,572
NH PENSACOLA	730	731	687	2,104	45,135
NH BEAUFORT	493	556	585	1,912	11,265
NH LEMOORE	597	630	543	1,783	14,163
NH OAK HARBOR	551	571	531	1,634	15,274
NH CHERRY POINT	435	686	118	1,460	15,484
NH TWENTYNINE PALMS	136	150	394	967	13,740
NH GREAT LAKES	626	0	0	628	17,443

b. MTF Selection

Due to time and budget constraints and the desire to analyze individual MTF operations, the set of MTFs analyzed in detail was narrowed to a set of the four sites with the most deliveries: the Naval Medical Center Portsmouth (NMCP), the Naval Hospital Camp Lejeune (NHCL), the Naval Medical Center San Diego (NMCSD), and the Naval Hospital Camp Pendleton (NHCP) (see Table 2).

In addition to being the two largest facilities in Navy Medicine on the east and west coast, respectively, NMCP and NMCSD are both OB training facilities with Neo-Natal Intensive Care Units (NICU) offering similar services. In 2008, NMCP's enrollment population was 108,906 and it performed 5,085 deliveries. In 2008 NMCSD's enrollment population was 97,987 and it performed 3,702 deliveries.

NHCL and NHCP are located on the largest Marine Corps bases (MCB) on the east and west coast, respectively. Neither are OB training facilities, nor do they have NICUs. In 2008, NHCL's enrollment population was 34,107 and it performed 2,908 deliveries. In 2008 NHCP's enrollment population was 51,250 and it performed 2,655 deliveries.

2. Diagnoses Related Group (DRG) Cost and Determination

a. DRG Determination

The original data pulled contained 42 different DRGs associated with obstetrics, gynecology, and newborn care (see Appendix A). Since this study focused only on the costs associated with the actual deliveries, the researchers eliminated those DRGs not performed by the OB provider. This resulted in a reduction from 42 to the ten DRGs listed in Table 3 - those DRGs associated with care performed by an OB provider.

Table 3. DRG decomposition: the ten DRGs selected for the comparison across MTFs

DESCRIPTION	DRG
CESAREAN SECTION W CC	370
CESAREAN SECTION W/O CC	371
VAGINAL DELIVERY W COMPLICATING DIAGNOSES	372
VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES	373
VAGINAL DELIVERY W STERILIZATION &/OR D&C	374
VAGINAL DELIVERY W OR PROC EXCEPT STERILIZATION &/OR D&C	375
THREATENED ABORTION	379
ABORTION W/O D&C	380
ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY	381
FALSE LABOR	382

b. DRG Cost

The number of direct care (DC) deliveries in the MTFs was determined by looking at the "Dispositions, Total" field of the M2 database. The "Admission Count, Total" field provided the number of purchased care (PC) deliveries in the civilian sector.

Currently, determining an accurate cost associated with the delivery of care within the MTF is not possible. This is a limitation of M2. The Medical Expense and Performance Reporting System (MEPRS) is the closest to traditional cost accounting

or activity based costing in the MTFs. According to Dr. William Heroman, Health Plan Design and Management TriWest Healthcare Alliance Policy and Strategy Headquarters:

> We do not have an effective way to determine the cost of MTF care. It is very difficult to do even for an MTF. MEPRS [Medical Expense and Performance Reporting System] is the closest thing to traditional cost accounting or activity based costing in the MTFs. It can be done looking at allocation of overhead per square foot, labor cost of OBs, and nurses, etc. (Heroman, 2009)

M2 does contain the data required to determine the PC cost in each catchment area. The cost associated with PC within the civilian sector was calculated using the "Amount Paid, Total." The cost per delivery was obtained by dividing the "Amount Paid, Total" by the "Admission Count, Total." The "Admissions Count, Total" equals the total admissions expected in the private sector when all claims are processed. The "Amount Paid, Total" equals the total amount paid when all claims are processed.

When analyzing the cost data, it was determined that the DRG cost variation was much larger for complicated deliveries (i.e., DRGs 370 and 372) than deliveries without complications (i.e., DRGs 371 and 373). Because of the variety of problems associated with complicated vaginal deliveries and cesarean sections, there was a large variation in costs associated with complicated deliveries. Thus, for this data, the standard deviations for DRG 370 and DRG 372 were much larger than the standard deviations associated with DRG 371 and DRG 373 (see Table 4). The standard deviation for the cost of a DRG 370 was exceptionally large.

Table 4. PC DRG Cost Descriptive Statistics FY 2006–2008

DRG	**370**	**371**	**372**	**373**
Mean	$5,304.44	$3,342.86	$2,377.71	$1,804.36
Standard Error	$686.56	$86.42	$126.26	$35.30
Median	$4,215.41	$3,331.63	$2,424.34	$1,818.88
Standard Deviation	**$4,605.59**	**$753.37**	**$892.78**	**$340.42**
Range	$28,691.22	$5,084.28	$6,223.45	$1,719.89
Minimum	$952.34	$1,040.04	$480.28	$903.69
Maximum	$29,643.56	$6,124.32	$6,703.73	$2,623.57
Coefficient of Variation	86.8%	22.5%	37.5%	18.9%

As the data was analyzed, it was determined the cost calculated for each DRG at each MTF was not necessarily an accurate assessment of the cost associated with civilian hospital delivery cost in the catchment area. This discrepancy came from the inclusion of costs associated with enrolled mothers who delivered their babies in facilities outside of the catchment area associated with the MTF. In 2006 at NHCL, there were 157 PC Cesarean Sections without Complications (DRG 371) with an average cost of $6,863.54 per delivery. However, 48 of those deliveries (approximately 30%) were to women outside the catchment area. For example, suppose a pregnant enrollee assigned to NHCL moves home to Charleston, WV, to be with her parents during her husband's deployment. While in WV, she delivers her baby. The costs associated with that delivery in the WV hospital will then be included in NHCL's "Amount Paid, Total." This distorts the "Amount Paid, Total" for enrollees in the NHCL catchment area. In the case of NHCL, excluding these 48 out-of-catchment-area deliveries, the average cost per PC delivery at Camp Lejeune increased 25% to $8,600. For analysis purposes, these out-of-catchment area deliveries were excluded.

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II. BACKGROUND

A. MILITARY TREATMENT FACILITY (MTF) INFORMATION

This study focused on four primary MTFs: Naval Medical Center Portsmouth (NMCP), Naval Medical Center San Diego (NMCSD), Naval Hospital Camp Pendleton (NHCP), and Naval Hospital Camp Lejeune (NHCL). Table 5 provides a snapshot of these MTFs.

Table 5. Military Treatment Facilities' (MTF) General Information FY 2009

Parameter	**NMCP**	**NMCSD**	**NHCP**	**NHCL**
Square Footage	1.3 M	1.5 M	580,000	354,000
Beds	500	268	123	236
Operating Rooms	17	18	6	5
MTF Enrollees 2008	108,906	97,987	51,250	34,107
Hospital Staff				
Officers	1,161	1,200	323	240
Enlisted	1,688	2,000	826	600
Civilians	1,717	2,100	700	450
Contract Civilians	1,333	750	331	460

1. Naval Medical Center Portsmouth (NMCP) General Information

The NMCP is a tertiary training hospital located in Portsmouth, Virginia, in the heart of Hampton Roads. Portsmouth shares its city border with Norfolk, Virginia.

The NMCP mission states: "The mission of Naval Medical Center Portsmouth is to support the national interests of the United States by providing professional education and development, quality patient care, in addition to being responsive and ready for deployment, and taking care of each other as shipmates." (Portsmouth, Welcome Aboard, 2009)

Commands under NMCP's purview include:

- Naval Air Station (NAS) Oceana
- Naval Operations Base (NOB) Norfolk
- Naval Amphibious Base (NAB) Little Creek
- Naval Weapons Station Yorktown

- NAS Oceana Damneck Annex
- Naval Supply Center Cheatham Annex
- Naval Support Activity (NSA) Northwest
- Norfolk Naval Shipyard
- Marine Forces Command
- Joint Forces Command

NMCP is a 500 bed-hospital encompassing 1.3 million square feet that offers general clinical and hospitalization services for its 108,906 enrolled beneficiaries comprised mainly of active duty and retired personnel and their families. It has 300 clinical exam rooms, 140 special exam rooms, and 17 operating rooms (OR). Its staff of Military and Civilian Professionals includes 1,161 officers, 1,688 enlisted, 1,717 civilians, and 1,333 contract civilians (Portsmouth, Naval Medical Center Portsmouth, 2009).

2. Naval Medical Center San Diego (NMCSD) General Information

The NMCSD is a tertiary training hospital located in San Diego, CA.

The NMCSD mission states: "Prepare to deploy in support of operational forces, deliver quality health services, and shape the future of military medicine through education, training, and research." (Navy Medical Center San Diego, 2009)

The commands under NMCSD's purview include:

- Naval Base San Diego
- Marine Corps Air Station (MCAS) Miramar
- Marine Corps Recruiting Depot (MCRD) San Diego
- Naval Air Field (NAF) El Centro
- Naval Air Station (NAS) North Island
- NMCSD Hospital Facility
- National Training Center (NTC) San Diego
- Naval Amphibious Base (NAB) Coronado
- Naval Special Warfare Command (NAVSPECWARCOM)
- TRICARE Outpatient Clinic Chula Vista
- TRICARE Outpatient Clinic Clairemont Mesa
- TRICARE Outpatient Clinic East County

NMC San Diego is a 268-bed hospital encompassing 1.5 million square feet that offers general clinical and hospitalization services for its 97,987 enrolled beneficiaries comprised mainly of active duty and retired personnel and their families. It has 18 operating rooms and 11 primary care clinics offering active duty and family care extending from Miramar to El Centro. Its staff of military and civilian professionals includes 1200 officers, 2000 enlisted, 2100 civilians, and 750 contract civilians (NMCSD, Naval Medical Center San Diego, 2009).

3. Naval Hospital Camp Pendleton (NHCP) General Information

Naval Hospital Camp Pendleton (NHCP) is located between Oceanside, San Clemente, and Fallbrook, CA. The MCB is located on a federal preserve in Southern California approximately 35 miles north of San Diego and 100 miles south of Los Angeles (NHCP, About Naval Hospital Camp Pendleton, 2009).

The NHCP mission states:

> Support to warfighters, both past and current, and their families is the reason we exist. The spectrum across which we provide that support is broad and includes, but is not limited to, field training and other predeployment unit support, supporting warfighter families during deployment, caring for warfighters that need us after deployment, deploying with warfighters when required, and taking personal responsibility to ensure our readiness is current so we can deploy when called upon to support a nation that needs us. We will continually strive to enhance and improve warfighter support at all levels and in all areas. (Commander NHCP, 2009)

Commands under NHCP's purview include:

- Marine Corps Base Camp Pendleton
- 1st Marine Division (1st MARDIV)
- 1st Marine Expeditionary Force (I MEF)
- 1st Marine Logistics Group (1st MLG)
- Marine Air Group 39
- Naval Dental Battalion
- Fleet Hospital Operational Training Command (FHOTC)
- Field Medical Service School

- Marine Corps Air Station Yuma AZ
- Naval Base Ventura County
- Marine Corps Logistic Base Barstow

The hospital is a 123-bed facility with six operating rooms that offers general clinical and hospitalization services for its 51,250 enrolled beneficiaries comprised mainly of active duty and retired personnel and their families (NHCP, 2009). The staff of Naval Hospital Camp Pendleton consists of approximately 323 Officers, 826 Navy Corpsmen, 700 civilians, 331 contractors, and many volunteers (NHCP, About Naval Hospital Camp Pendleton, 2009).

4. Naval Hospital Camp Lejeune (NHCL) General Information

NHCL is located aboard MCB Camp Lejeune adjacent to the city of Jacksonville, North Carolina. Because Jacksonville, NC, is a rural community isolated from other cities with hospitals, Medicare has declared the only civilian hospital, Onslow Memorial Hospital, a "sole provider community hospital." This results in higher purchased care (PC) reimbursement rates.

The NHCL mission states: "To serve our growing military community through excellence in patient and family centered care, readiness, and professional development." (Naval Hospital Camp Lejeune, 2009)

Commands under NHCL's purview include:

- Marine Forces Atlantic
- 2nd Marine Division
- 2nd Marine Expeditionary Force (II MEF)
- 2nd Marine Logistics Group (2nd MLG)
- MCB Camp Lejeune
- Marine Corps Air Station (MCAS) at New River
- Numerous other tenant activities

The hospital is a 236-bed facility with five operating rooms that offers general clinical and hospitalization services for its 34,107 enrolled beneficiaries comprised mainly of active duty and retired personnel and their families. Today, the staff of Naval

Hospital Camp Lejeune consists of approximately 240 Officers, 600 Navy Corpsmen, 450 civilians, 460 contractors, and many volunteers. (NHCL, 2009)

B. MILITARY TREATMENT FACILITY (MTF) OBSTETRICS (OB) DEPARTMENT INFORMATION

Table 6. MTF OB Department Snapshot of Personnel and Facilities FY 2009

	NMCP	NMCSD	NHCP	NHCL
General OB Physicians	15	13	5	10
Urogynecology Physicians	1	1	0	0
Maternal Fetal Medicine Physicians	5	2	0	0
Reproductive Endocrinologist and Infertility Physicians	1	2	0	0
Oncologist	2	1	0	0
Midwives	9	10	5	10
OB Residents	22	20	0	0
Total Providers	55	49	10	20
Labor and Delivery Rooms	10	11	7	10
Operating Rooms	4	3	1	2
Antepartum Rooms	4	21	0	5
Postpartum Rooms	31	19	18	10
NICU	18	32	0	0
Birth Goals per month	333	330	140	200
Decision Tools	None	Several	Database	None
Business Manager	Nurse	GS-13	None	None
Enrollment 2008	108,906	97,987	51,250	34,107

1. Naval Medical Center Portsmouth (NMCP) Obstetrics (OB) Department Information

NMCP's Obstetrics (OB) department is the largest in TRICARE North's region. Its mission is split between training and delivery. One of two OB training hospitals in Navy Medicine, its ward contains a mix of board certified doctors and residents. NMC Portsmouth's OB Department has 15 OB providers, five maternal fetal medicine specialists, two oncologists, one urogynocologist, and one reproductive endocrinologist and infertility doctor. There are also nine certified nurse midwives and 22 OB Residents. The total number of providers is 55 (see Table 6).

Portsmouth's OB department is capable of all OB care requirements from the most normal complication-free vaginal delivery to the most difficult and complicated neo-natal situations. Its Maternal Infant Unit (MIU) provides normal and high risk pre-delivery, delivery, and post-delivery care, as well as newborn care. Other MIU services include uncomplicated vaginal deliveries, labor induction and augmentation, and elective and/or indicated cesarean deliveries.

Portsmouth's delivery unit consists of four antepartum rooms; ten Labor/Delivery/Recovery/Postpartum (LDRP) rooms; four operating rooms (OR); and 31 postpartum rooms. NMCP's OB department also has a Neo-natal Intensive Care Unit (NICU) capable of handling 18 patients. NMCP bases their annual goal of 4,000 patients on the caesarean requirements for training the OB residents. Upon further inquiry in order to understand how the 4,000 was derived, no further explanation could be given. The OB Department head claimed their limiting factors included time inefficiencies associated with Armed Forces Health Longitudinal Technology Application (AHLTA) and the nurse-to-baby ratio. A Navy nurse serves full-time as the OB department's business manager. Essentially, the business manager's responsibilities include scheduling personnel and assets (delivery rooms, etc.).

2. Naval Medical Center San Diego (NMCSD) Obstetrics (OB) Department Information

NMCSD's OB department is the largest in TriWest. The Department of Obstetrics and Gynecology (OB/GYN) focuses on providing comprehensive, state-of-the-art OB and GYN care. They offer continuity of care with the medical provider of choice in a family-centered setting. NMCSD provides OB/GYN care to active duty women, retired military personnel, and dependent wives and daughters on a referral basis from the primary care providers. Services include routine GYN, prenatal care, and labor and delivery. (OB/GYN N., 2009)

The NMCSD OB department's mission is split between training and delivery. One of two OB training hospitals in Navy Medicine, its ward contains a mix of board certified doctors and residents. NMCSD's OB Department has 13 OB providers, two

maternal fetal medicine specialists, one oncologist, one urogynocologist, and two reproductive endocrinologist and infertility doctors. There are also ten certified nurse midwives and 20 OB residents (see Table 6).

NMCSD's OB department is capable of all OB care requirements from normal complication free vaginal deliveries to difficult and complicated neo-natal situations. Its Maternal Infant Unit (MIU) provides normal and high risk pre-delivery, delivery, and post-delivery care, as well as newborn care. Other MIU services include uncomplicated vaginal deliveries, labor induction and augmentation, and elective and/or indicated cesarean deliveries. Its delivery unit consists of 21 antepartum rooms, 11 Labor/Delivery/Recovery/Postpartum (LDRP) rooms, three operating rooms (OR), and 19 postpartum rooms. NMCSD's OB department also has a Neo-natal Intensive Care Unit (NICU) capable of handling 32 patients. NMCSD has a GS-13 business manager who has implemented forecast models capable of predicting monthly delivery rates nine months in advance within a 5% accuracy. Additionally, they have a separate Microsoft Access database into which all OB patients are entered for tracking purposes.

3. Naval Hospital Camp Pendleton (NHCP) Obstetrics (OB) Department Information

NHCP's OB department is much smaller than the two previous MTFs. It only has five OB/GYN physicians and five certified nurse midwives (see Table 6). NHCP's OB department is capable of all non-complicated OB care requirements. Its Maternal Infant Unit (MIU) provides normal pre-delivery, delivery, and post-delivery care, as well as newborn care. Other MIU services include uncomplicated vaginal deliveries, labor induction and augmentation, and elective and or indicated cesarean deliveries.

NHCP's labor and delivery unit consists of seven Labor/Delivery/Recovery/Postpartum (LDRP) rooms; one operating room (OR); and 18 postpartum rooms. NHCP uses a database to guide their birthing forecast. They have a goal of 140 babies per month. The OB department head claimed their limiting factors included time inefficiencies associated with facilities and appointments. Currently, the OB department has no business manager (see Table 6).

4. Naval Hospital Camp Lejeune (NHCL) Obstetrics (OB) Department Information

NHCL's OB department has ten OB/GYN physicians and ten certified nurse midwives (see Table 6). NHCL's OB department is capable of all non-complicated OB care requirements. Its Maternal Infant Unit (MIU) provides normal pre-delivery, delivery, and post-delivery care, as well as newborn care. Other MIU services include uncomplicated vaginal deliveries, labor induction and augmentation, and elective and/or indicated cesarean deliveries.

NHCL's labor and delivery unit consists of five antepartum rooms; ten Labor/Delivery/Recovery/Postpartum (LDRP) rooms; two operating rooms (OR); and ten postpartum rooms. They have a delivery goal of 200 per month. The OB Department head claimed their limiting factors included the time inefficiencies associated with AHLTA and facilities shortfalls. NHCL's OB department has neither decision tools, nor a business manager.

III. ANALYSIS

A. THEORY OF OBSTETRIC COST AND QUANTITY OF DELIVERIES

1. OB Cost Behavior

The Navy funds MTFs, not OB departments. The MTFs allocate their budget to their various departments as they deem appropriate, but most of their OB assets are either fixed or sunk costs. For example, the physicians are salaried, the medical equipment and instruments are purchased, and the Labor and Delivery rooms are already built. Whether the MTF performs one or 1,000 deliveries per year, the cost for these assets will not change. Therefore, for all practical purposes, the Navy incurs no additional cost for an additional DC delivery. However, since the Navy pays for each PC delivery separately, the total cost of PC deliveries increases with each additional delivery. Therefore, PC deliveries are a variable cost. Consequently, for every PC delivery converted to a DC delivery, the Navy will save the cost of a PC delivery.

2. Theoretical Delivery Model

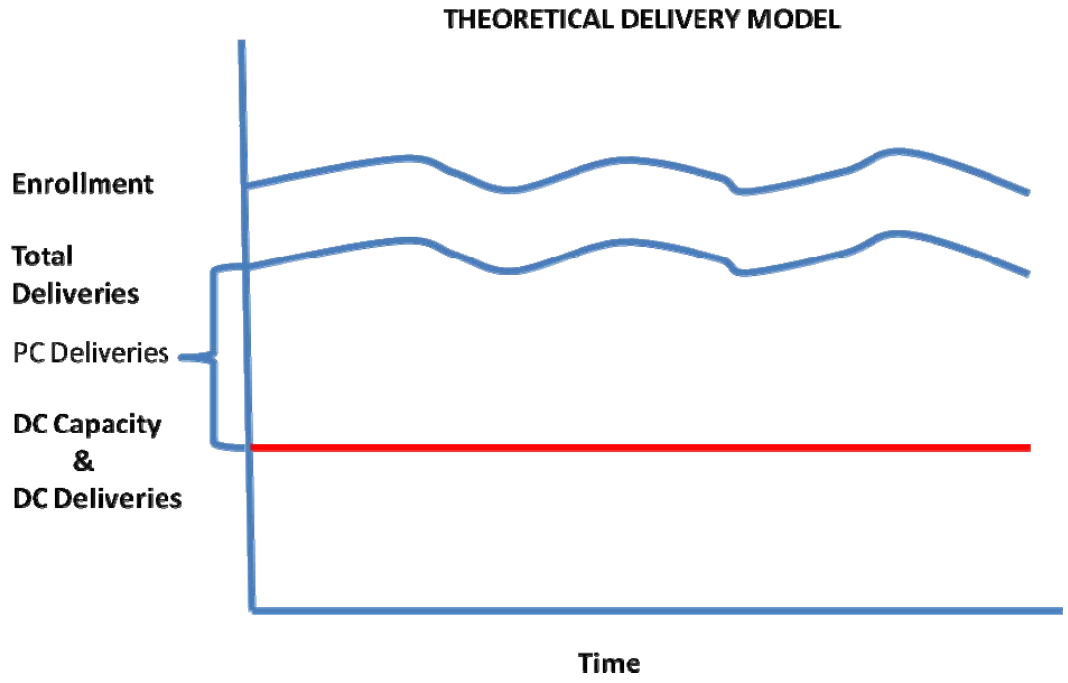


Figure 1. Theoretical Delivery Model

Figure 1 shows the optimal delivery model that MTFs should follow. Theoretically, the total deliveries in an MTF's catchment area should be less than, but somewhat correlated to, its enrollment over time. Furthermore, an MTF's total deliveries are the sum of the number of direct care (DC) deliveries and the number of purchased care (PC) deliveries. If the MTF is working at capacity, then the number of DC deliveries will equal the MTFs capacity. In theory, since DC deliveries are essentially free to the Navy and PC deliveries aren't, the goal should be to maximize DC deliveries and minimize PC deliveries. So, the goal is to have the MTF work at its capacity. An MTF's DC capacity is the maximum number of DC deliveries that it can reasonably perform per period. Therefore, PC deliveries should only occur when total deliveries exceed DC capacity. If total deliveries do not fall below a MTFs DC delivery capacity, then overall DC deliveries should remain constant. If total deliveries fall below a MTFs DC delivery capacity, then all deliveries should be performed in the MTF and there should be no PC deliveries. Therefore, as long as total deliveries exceed DC capacity,

overall PC deliveries should follow the same pattern as total deliveries. When deliveries total falls below DC capacity, DC deliveries should equal total deliveries and PC deliveries should equal zero.

3. When MTFs Don't Work at Delivery Capacity

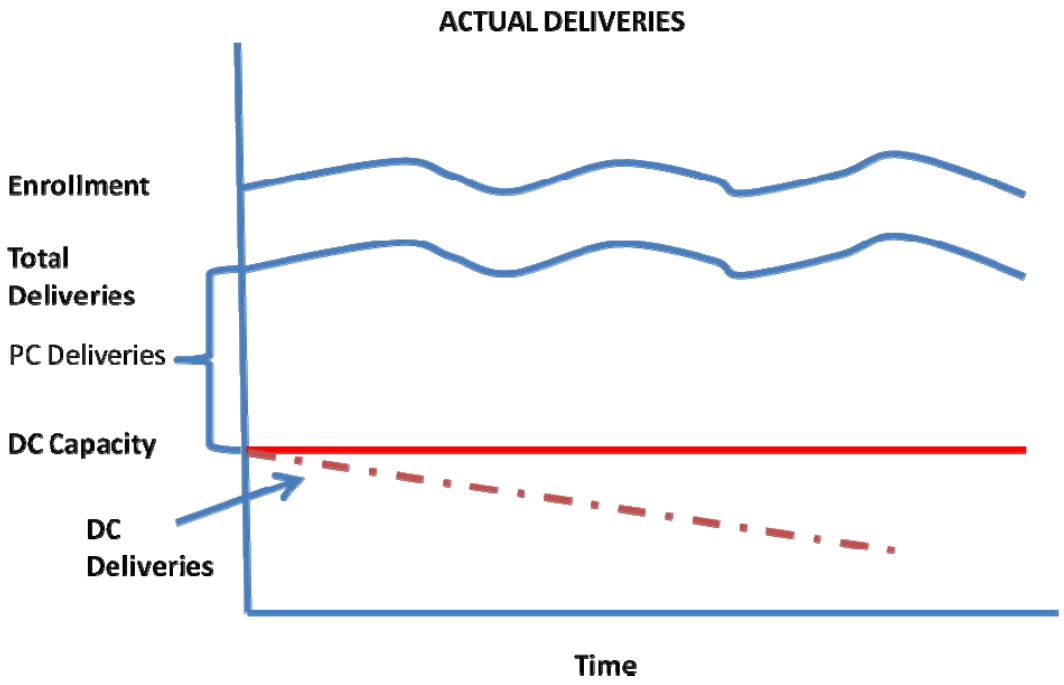


Figure 2. Actual Current MTF DC Delivery Trend

Figure 2 is an accurate depiction of the current situation with OB deliveries in the the four MTFs. This illustration represents the four MTFs not meeting delivery capacity while DC deliveries simultaneously decreased from FY 2006 to FY 2008. Clearly, if MTFs don't work at capacity, the gap between DC and total deliveries widens. Since this gap represents the number of PC deliveries, this increase in PC deliveries has resulted in significant cost increases to Navy Medicine.

B. MTF COST AND DELIVERY TRENDS

1. Military Treatment Facility (MTF) Delivery Trends

Table 7. MTF Enrollment and Delivery Data for FY 2006–2008

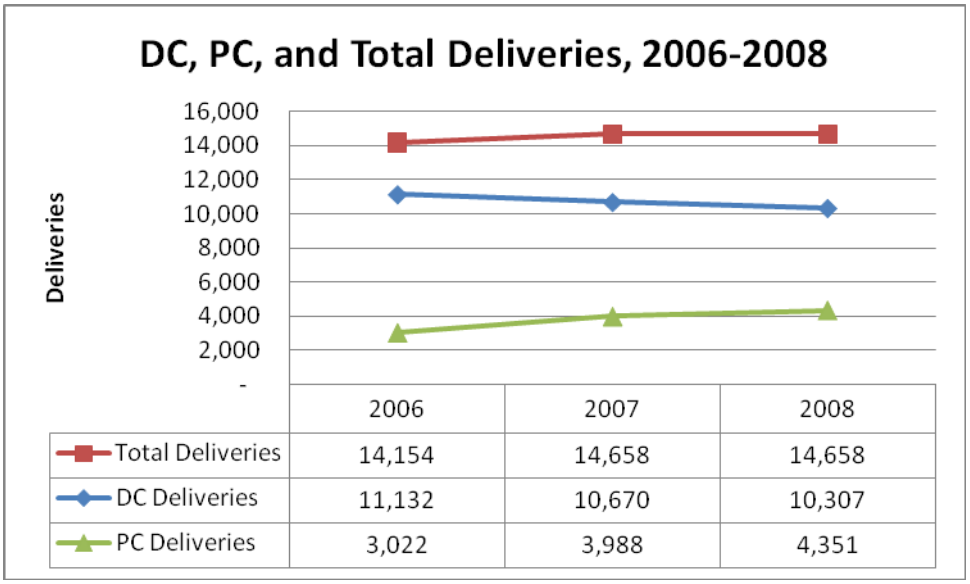
	Fiscal Year	NHCL	NHCP	NMCP	NMCSD	Four MTF Total
Enrollment	2006	35,412	55,326	125,738	107,946	324,422
	2007	35,826	53,918	111,380	95,743	296,867
	2008	34,107	51,250	108,906	97,987	292,250
3-Yr Percent Change		**-3.69%**	**-7.37%**	**-13.39%**	**-9.23%**	**-9.92%**
Total Deliveries	2006	2,264	2,429	5,547	3,914	14,154
	2007	2,776	2,557	5,376	3,949	14,658
	2008	2,933	2,691	5,237	3,797	14,658
3-Yr Percent Change		**29.55%**	**10.79%**	**-5.59%**	**-2.99%**	**3.56%**
DC Deliveries	2006	1,573	1,823	4,219	3,517	11,132
	2007	1,990	1,778	3,446	3,456	10,670
	2008	1,850	1,638	3,832	2,987	10,307
3-Yr Percent Change		**17.61%**	**-10.15%**	**-9.17%**	**-15.07%**	**-7.41%**
PC Deliveries	2006	691	606	1,328	397	3,022
	2007	786	779	1,930	493	3,988
	2008	1,083	1,053	1,405	810	4,351
3-Yr Percent Change		**56.73%**	**73.76%**	**5.80%**	**104.03%**	**43.98%**

Table 7 contains the data from FY 2006–2008 for enrollment, deliveries, DC deliveries, and PC deliveries. As indicated, while overall enrollment decreased, total deliveries increased. Intuitively, it seems that a reduction in enrollment should reduce total deliveries. For these three years at these four sites, that was not the case. More importantly, though, was that as total deliveries increased, DC deliveries decreased. If MTFs were operating at capacity, the number of total deliveries should not have an affect on the number of DC deliveries (assuming total deliveries exceed DC capacity). Therefore, the percent of deliveries that are performed in MTFs (DC deliveries) should increase as total deliveries fall, and the percent of DC deliveries should decrease as total

deliveries rise. In fact, the percent of DC deliveries dropped 9% from 79% to 70% (11,132 divided by 14,154 to 10,307 divided by 14,658) while total deliveries increased 3.6%.

Over the FY 2006 through FY 2008 period, DC deliveries dropped by 825 (7.4%), while PC deliveries increased 1,329 (44%). Theoretically, around 800 of those PC deliveries could have been performed in MTFs. This significant increase in PC deliveries appears to be a driving cause of the increasing cost in OB care. Allowing individual MTFs the flexibility to independently manage their OB departments resulted in a 44% increase in PC deliveries over the 3-year period with a commensurate increase in OB costs. Maintaining DC deliveries at MTF capacity appears to be a reasonable way to control costs.

2. Total DC and PC Deliveries in Each MTF for FY 2006–2008



	2006	2007	2008
Total Deliveries	14,154	14,658	14,658
DC Deliveries	11,132	10,670	10,307
PC Deliveries	3,022	3,988	4,351

Figure 3. Total, DC, and PC Deliveries from FY 2006–2008 for the Four MTFs

As indicated in both Table 7 and Figure 3, the average number of DC deliveries in the four MTFs decreased 7.41% (825 deliveries) from FY 2006–2008. While DC deliveries decreased, PC deliveries increased 43.98% (1,329 deliveries).

3. Analysis of Civilian Care OB Costs

According to an April 2009 nationwide study by the Health care Cost and Utilization Project (HCUP), in 2006, a vaginal delivery without complications, DRG 373, averaged $2,600. A caesarean section without complications, DRG 371, averaged $4,500 (C. Allison Russo, 2009).

Table 8. Cost Comparison for DRGs 371 and 373 for the Four MTFs from FY 2006–2008

DRG 371 (CESAREAN SECTION W/O COMPLICATING DIAGNOSES) FY 2006-2008				
Navy Hospital	**2006**	**2007**	**2008**	**3 Yr Average**
NH CAMP LEJEUNE	$8,600.40	$9,274.91	$7,855.78	$8,577.03
NH CAMP PENDLETON	$2,848.67	$2,948.02	$2,860.43	$2,885.71
NMC PORTSMOUTH	$2,444.15	$2,713.13	$2,697.79	$2,618.36
NMC SAN DIEGO	$3,130.05	$2,950.79	$3,816.18	$3,299.01
DRG 373 (VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES) FY 2006-2008				
Navy Hospital	**2006**	**2007**	**2008**	**3 Yr Average**
NH CAMP LEJEUNE	$5,151.81	$4,607.11	$4,289.71	$4,682.88
NH CAMP PENDLETON	$1,759.19	$1,835.89	$1,780.80	$1,791.96
NMC PORTSMOUTH	$1,999.11	$1,963.08	$2,034.55	$1,998.91
NMC SAN DIEGO	$2,203.32	$2,375.93	$2,542.38	$2,373.88

At the four MTFs, the average delivery cost associated with vaginal deliveries without complications was $2,778 in FY 2006, while a normal cesarean section without complications averaged $4,256. However, the range of average delivery costs for NMCP, NMCSD, and NHCP are even smaller when NHCL costs are removed from the equation. Computing the average for the three lower cost facilities, the average cost for DRG 373 dropped $791 to $1,987, while the average cost for a DRG 371 delivery dropped $1,448 to $2,808 (see Table 8). Compared to the nationwide averages mentioned, Medicare has negotiated very competitive reimbursement rates in larger cities because of competition. As a result, TRICARE cost for a PC delivery is relatively inexpensive.

4. Analysis of MTF PC Delivery Costs

The range of average PC delivery costs for DRG 371 at NMCP, NMCSD, and NHCP was a narrow $700 (minimum $2,618 at NMCP and a max of $3,299 at NMCSD). The average cost for a DRG 371 at NHCL was $8,577, approximately $5,300 (260%) more than the average cost at NMCSD, the second most expensive location. Similarly, the range of average PC delivery costs for DRG 373 at NMCP, NMCSD, and NHCP was almost $600 (minimum $1,792 at NHCP and a max of $2,374 at NMCSD). The average cost for a DRG 373 at NHCL was $4,683, approximately $2,300 (200%) more than the average cost at NMCSD, the second most expensive location.

C. INSIGHTS AND RECOMMENDATIONS

1. Insights

a. Naval Hospital Camp Lejeune (NHCL) has Higher PC Delivery Costs

NHCL had higher average costs for both DRG 371 and 373 than the other three MTFs (see Table 8). This cost difference is a result of Medicare's designation of Onslow Memorial Hospital's as a "Sole community hospital." Medicare allows significantly higher reimbursement rates for sole community hospitals to ensure they do not go out of business and leave the community without healthcare. Consequently, since Navy reimbursement rates for PC deliveries are based on Medicare reimbursement rates, the average cost for deliveries at NHCL, and all other Navy MTFs in sole community hospital areas, is likely to be higher than at other MTFs. Regarding this variance, Navy Medicine should determine their fiduciary responsibility to community hospitals co-located with MTFs. If public policy dictates that Navy Medicine has a responsibility to ensure the viability of civilian organizations, then NHCL's delivery goals should consider the needs of the community hospital as well as overall costs when setting their DC delivery goals.

b. Geographic Location Matters

As discussed above, DRG reimbursement rates differ geographically based on Medicare reimbursement rates. There are a number of factors that Medicare uses to determine their reimbursement rates. Whether an area has many hospitals or a "sole community hospital" is one factor. Another factor is the cost of living in the area. For example, the cost of living is higher in San Diego, CA, NMCSD's catchment area than in Oceanside, CA, NHCP's catchment area. These reimbursement rate differences are reflected in the cost per delivery in DRG 371 and 373 (see Table 8).

c. Training Hospitals Have Additional Requirements

Navy training hospitals (i.e., NMCP and NMCSD) have additional requirements that non-training MTFs don't have. For example, NMCP is an OB training hospital and is responsible for the training of 22 OB residents. As a result, the OB residents must perform a certain number of cesarean sections in order to become "Board Certified." Currently the cesarean section rate is 25% (i.e., ¼ of all deliveries are cesarean sections). NMCP's delivery goal of 4,000 deliveries a year (roughly 333 per month) is based on the number of OB residents needing training and the cesarean section rate. However, no one could tell us, specifically, how the goal of 4,000 was derived. This goal meets the resident cesarean training requirement. NMCSD is also an OB training facility with a goal of 330 deliveries per month to meet their OB resident training requirement. In addition to training requirements for OB residents, deliveries at the training hospitals increases resident training opportunities for all healthcare providers involved (e.g., OB, NICU, pediatrics, anesthesiologists, etc.).

d. Managing the Quantity of Normal and Complicated Deliveries Should Reduce Costs

Using forecasting models, MTFs can predict their monthly deliveries. Complicated deliveries cost far more than normal deliveries. If an MTF identifies difficult deliveries, outsourcing predicted normal deliveries could reduce overall PC costs. This may result in less DC deliveries, but it would lower the total cost to Navy Medicine. At NMCSD, there were 208 DRG 371 deliveries and 432 DRG 373 deliveries

in 2008. The average cost difference between DRG 371 and DRG 373 deliveries, assuming no complications, is almost $1,300 per delivery in 2008. If NMCSD allocated 208 DRG 373 deliveries and recouped an equal number of DRG 371 deliveries, they could save $264,000. There would be similar cost savings for each of the MTFs.

e. AHLTA is a Limiting Factor

All four MTFs identified AHLTA as a limiting factor to the number of DC patients that could be cared for. OB providers in an MTF are required to document each patient visit (e.g., antepartum visits, deliveries, postpartum visits, etc.) and/or procedure in AHLTA. This time consuming process is wasteful for a highly trained, highly paid professional. Generally, in the civilian sector, an administrative aid works alongside the OB provider documenting the session as it progresses. This allows the OB provider to: (1) provide better bedside manner by focusing on the patient instead of the computer, (2) perform the tasks for which he has been trained rather than data entry, and (3) accelerates the documentation process by allowing a data entry specialist to perform this task. Relieving OB providers of the documentation task will free up time that he could use to see additional patients each day. Hiring AHLTA data entry specialists may enable MTFs to reduce the number of OB providers by allowing the providers to care for patients in the time they now spend on the time consuming documentation process.

2. Recommendations

a. Recognize and/or Determine the Bottleneck

Bottleneck analysis for each MTF could lower overall MTF costs by increasing DC capacity. DC bottlenecks should be identified in each of the Navy's MTFs. All investment funding at a given MTF should focus on easing the constraint set by the bottleneck (i.e., the asset that is the limiting factor in increasing DC deliveries). If the bottleneck cannot be expanded, then funding for the non-bottleneck assets (i.e., personnel and supplies) should be based on the limited throughput allowed by the bottleneck.

Across the four MTFs, certain factors appeared to limit DC delivery capacity: the scheduling of the nine to ten antepartum visits, the number of facilities (e.g., delivery rooms and operating rooms), the number of OB providers, and the number of OB support staff. Identifying the bottleneck is the OB department's first step toward a process of ongoing improvement.

b. Limiting Factors Might Include Public Policy Issues

If capacity at NHCL increased for DC deliveries, TRICARE could save the cost of PC deliveries. From FY 2006–2008, average savings would have been $8,577.00 per PC DRG 371 and $4,683.00 per PC DRG 373. NHCL's capacity could be increased if one provider and the supporting staff were obtained from another MTF.

However, at NHCL, the lack of hospitals in the area led Medicare to designate the only civilian hospital in Jacksonville, NC, Onslow Memorial Hospital, as a "Sole Community Hospital." One of Medicare's main concerns is to keep small rural hospitals in business. Performing additional deliveries at NHCL could decrease the financial security of Onslow Memorial Hospital, thereby severely limiting the rural population's access to care. Because of the public policy issues associated with maintaining this facility, allocating an additional physician or otherwise expanding DC capacity of NHCL could have unintended consequences on care in the surrounding community. Public policy should be considered where appropriate when allocating doctors and investment dollars. Navy Medicine should consider discussing the needs of the sole community hospital with Medicare when establishing their DC delivery goals.

c. Set MTF DC Delivery Goals Based on MTF DC Capacity

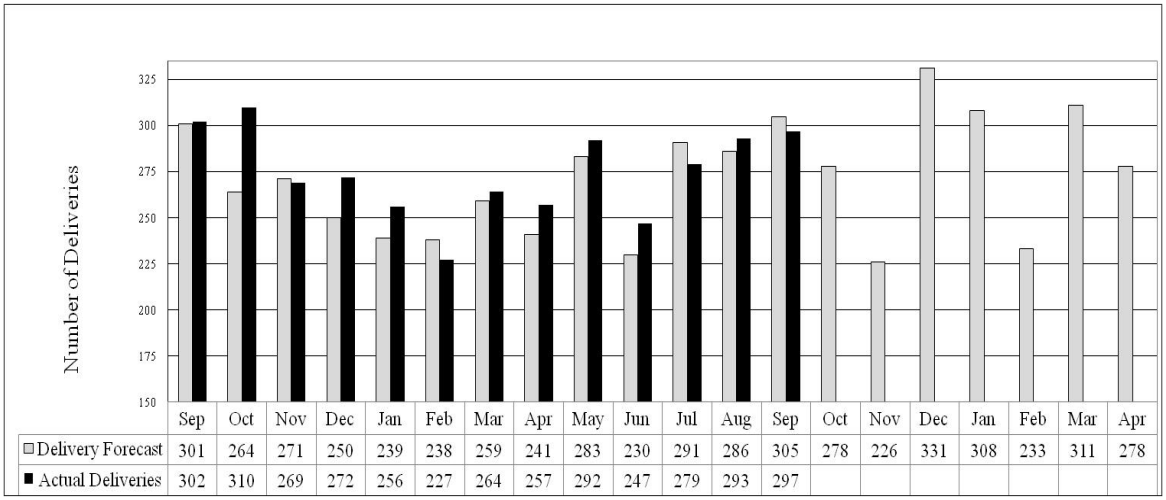
In areas where a "sole community hospital" is not an issue, MTFs can minimize total cost of deliveries by minimizing PC deliveries. Therefore, MTF DC delivery goals should be based on MTF DC capacity.

d. Standardize Goals

The establishment and management of monthly delivery goals are not standardized. For example, NMCP is a training hospital for 22 OB residents. As a result, the OB residents must do a certain number of cesarean sections in order to become "Board Certified." Currently the cesarean section rate is 25%. With this rate in mind, they have set their delivery goal at 4000 babies a year. NHCL based their goal of 200 deliveries per month on the number of pregnant mothers they could manage with 14 OB providers. NHCP bases their goal of 130 deliveries on their number of providers and facility limitations such as the number of recovery rooms.

The Navy should consider developing a standardized formula to determine an MTF's DC delivery capacity and establish an MTF's DC delivery goals.

e. Develop/Share Predictive Tools



	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Delivery Forecast	301	264	271	250	239	238	259	241	283	230	291	286	305	278	226	331	308	233	311	278
Actual Deliveries	302	310	269	272	256	227	264	257	292	247	279	293	297							

Figure 4. NMCSD forecast matrix

Of the four facilities, NMCSD was the only facility with an established system for OB management. They have developed predictive tools and databases to forecast deliveries in the coming months (see Figure 4).

The database enables them to forecast the number of deliveries to within 5% accuracy. They predicted a capacity overflow in December 2008 and identified eight uncomplicated deliveries to refer to the network for delivery. By actively managing the

cases, they minimize the cost of civilian network referrals. Additionally, they have the first right of refusal for all network prime enrollees. This enables them to bring all complicated deliveries into NMCSD. This maximizes network enrolled complicated delivery situations into the NMCSD NICU that most of the smaller midsize hospitals do not have. Metrics much like the ones used at NMCSD should be the standard for all MTFs. Proper forecasting can minimize misallocated patients increasing cost and decreasing training opportunities. Better business management results in better care for mothers.

f. Centralize or Coordinate OB Provider Information

There is no centralized personnel database identifying the number of providers at each facility. When asked how many OB providers were at the four MTFs, M2, DMRSi, and detailers all provided different answers. Site visits were the only reliable way to accurately determine the number of providers at each facility. Part of the problem is that there does not appear to be one source overseeing the management of personnel. Detailers manage the military billets; regions manage contracts with both civilian and contract providers; and MTFs independently contract physicians with limited oversight.

There should be only one source overseeing the database of all OB personnel—military, contract, or civilian.

g. OB Manager's Course of Instruction (COI)

Navy Medicine Manpower, Personnel, Training, and Education Command should develop an OB Management Course much like the Clinic Management Course. All OB managers should attend a formalized business management course of instruction focusing on the process of continual improvement for their respective MTFs.

h. Navy Military Treatment Facility Cross Talk

MTFs should cross talk and compare business practices, efficiency models and other nice-to-know information to optimize productivity. This cross-pollination could improve efficiency and reduce cost.

IV. CONCLUSIONS AND RECOMMENDED FURTHER RESEARCH

A. CONCLUSIONS

Many factors drive the number and total cost of purchased care in Navy Medicine. These factors include: training requirements (i.e., cesarean sections in the training hospitals); delivery capacity (i.e., the maximum number of deliveries that could be delivered in the MTF); delivery goals (i.e., the expected number of deliveries); Medicare policies (i.e., the designation of a hospital as a "sole community hospital" and negotiated reimbursement rates); and the cost of living within the community (i.e., rural versus metropolitan areas).

For the period FY 2006–2008, the total number and total cost of PC deliveries has increased, while the total number of DC deliveries has dropped. This research identified methods and opportunities to reduce some of the OB purchased care costs. These methods and opportunities include, but are not limited to the redirection of current PC deliveries to DC deliveries, increasing Navy OB care marketing, and employing management tools that accurately forecast deliveries so MTFs can operate at their DC capacity.

The four facilities researched do not have standardized management practices. For example, they use decisions tools unique to their MTF, and there does not seem to be a standardized method of establishing a goal for the number of DC deliveries per period. It appeared that NMCSD had the only specific forecasting models to assist them in operating at capacity. This model should be further developed and used as a tool for other Navy MTFs. This type of cross-pollination is important for overall process improvement.

A detailed list and explanation of recommendations for reducing OB costs to the Navy is in the "Insights and Recommendations" section of the Analysis chapter (Chapter III).

B. RECOMMENDED FURTHER RESEARCH

- Determine the reason for fluctuations in the number of DC deliveries at each MTF.
- Identify the cost structure for Navy MTFs and OB departments in order to compare DC cost with PC cost.
- Once DC cost structure can be correctly identified, determine if delivering babies in the MTF is cost-effective versus outsourcing, based on Medicare negotiated PC rates.
- What is the true DC capacity in Navy MTFs? Should individual MTFs be able to make up their goals or should Navy Medicine establish the goals and hold the Commanding Officers more accountable.
- Why do women go off base for OB care? What is truly the driving force behind the increased PC deliveries?

APPENDIX A: DIAGNOSTIC RELATED GROUPS (DRGS)

Code	Description
370	CESAREAN SECTION W CC
371	CESAREAN SECTION W/O CC
372	VAGINAL DELIVERY W COMPLICATING DIAGNOSES
373	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
374	VAGINAL DELIVERY W STERILIZATION &/OR D&C
375	VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C
379	THREATENED ABORTION
380	ABORTION W/O D&C
381	ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY
382	FALSE LABOR
383	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS
384	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS
391	NORMAL NEWBORN
600	NEONATE, DIED W/IN ONE DAY OF BIRTH
601	NEONATE, TRANSFERRED <5 DAYS OLD
602	NEONATE, BW <750G, DISCHARGED ALIVE
603	NEONATE, BW <750G, DIED
604	NEONATE, BW 750-999G, DISCHARGED ALIVE
605	NEONATE, BW 750-999G, DIED
606	NEONATE, BW 1000-1499G, W SIGNIF OR PROC, DISCHARGED ALIVE
607	NEONATE, BW 1000-1499G, W/O SIGNIF OR PROC, DISCHARGED ALIVE
608	NEONATE, BW 1000-1499G, DIED
609	NEONATE, BW 1500-1999G, W SIGNIF OR PROC, W MULT MAJOR PROB
610	NEONATE, BW 1500-1999G, W SIGNIF OR PROC, W/O MULT MAJOR PROB
611	NEONATE, BW 1500-1999G, W/O SIGNIF OR PROC, W MULT MAJOR PROB
612	NEONATE, BW 1500-1999G, W/O SIGNIF OR PROC, W MAJOR PROB
613	NEONATE, BW 1500-1999G, W/O SIGNIF OR PROC, W MINOR PROB
614	NEONATE, BW 1500-1999G, W/O SIGNIF OR PROC, W OTHER PROB
615	NEONATE, BW 2000-2499G, W SIGNIF OR PROC, W MULT MAJOR PROB
616	NEONATE, BW 2000-2499G, W SIGNIF OR PROC, W/O MULT MAJOR PROB
617	NEONATE, BW 2000-2499G, W/O SIGNIF OR PROC, W MULT MAJOR PROB
618	NEONATE, BW 2000-2499G, W/O SIGNIF OR PROC, W MAJOR PROB
619	NEONATE, BW 2000-2499G, W/O SIGNIF OR PROC, W MINOR PROB
621	NEONATE, BW 2000-2499G, W/O SIGNIF OR PROC, W OTHER PROB
622	NEONATE, BW >2499G, W SIGNIF OR PROC, W MULT MAJOR PROB
623	NEONATE, BW >2499G, W SIGNIF OR PROC, W/O MULT MAJOR PROB
624	NEONATE, BW >2499G, W MINOR ABDOM PROCEDURE
626	NEONATE, BW >2499G, W/O SIGNIF OR PROC, W MULT MAJOR PROB
627	NEONATE, BW >2499G, W/O SIGNIF OR PROC, W MAJOR PROB
628	NEONATE, BW >2499G, W/O SIGNIF OR PROC, W MINOR PROB
630	NEONATE, BW >2499G, W/O SIGNIF OR PROC, W OTHER PROB
636	NEONATAL DIAGNOSIS, AGE > 28 DAYS

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APPENDIX B: HISTORY OF TRICARE

1. THE EXPENSE OF TRICARE'S OB LINE

In FY 2006, the entire budget for medical services managed by TRICARE for the United States Military was $39 billion. Of this $39 billion, TRICARE's budget for outpatient services contributed $1.9 billion or 4.9%. Of this $1.9 billion, obstetricians (physicians whose specialty is the pregnant mother and a subset of outpatient services) contributed $82 million—4.3% of the entire outpatient services costs.

From FY 2004–2006, nearly 55,000 women sought care in the civilian sector, an increase of nearly 5% over the three-year period. If this trend continues, this small increase could spiral out of control and cause devastating fiscal ramifications in the future (GAO, 2007, July). According to the 2007 assessment by the Government Accountability Office, the TRICARE payment for Obstetric care was consistently too low. Typically, there are two global payment types used by TRICARE reimbursement administrators for the provision of obstetric care: uncomplicated vaginal delivery and uncomplicated cesarean delivery. A global payment pays one lump sum for all medical visits associated with the delivery regardless if the entire process requires one visit or 20 visits (GAO, 2007, July).

Prior to 2003, all pregnant beneficiaries who lived within 40 miles of a Military Treatment Facility (MTF) had two options: to either receive care in the closest MTF, or receive a non-availability statement from the same hospital and obtain care in the civilian sector. Because of direction, guidance, and laws established by Congress in 2001 and 2002, the requirement for a non-availability statement disappeared, and TRICARE enrolled patients sought care in the civilian sector without the previously needed non-availability statement (GAO, 2007, July).

According to Tim Ward, primary program analyst for the Navy's Bureau of Medicine, the largest "product line" of Navy medicine remains Obstetrics care. Each year approximately 22,000 beneficiaries living in and around Navy MTF hospitals give

birth. Approximately 24% of these deliveries are to active duty Navy women. The rest are to wives of active duty Navy members and other services (Ward, 2009).

Prior to FY 2000, the vast majority of these deliveries took place within Navy MTFs. However, over the past nine years, due to several factors, an increasing number of beneficiaries are choosing to deliver in private sector hospitals. In FY 2008, the Navy's bill for the provision and support of these deliveries in the civilian sector was $75 million. The number of pregnant mothers seeking care in the civilian sector continues to rise along with the cost of that care, while several Navy hospitals have downsized to clinics and others have eliminated inpatient obstetrical services altogether. Clearly, the ability of Navy Medicine to meet the obstetrical and related needs of our beneficiary population using Navy facilities and providers is diminishing while the cost to purchase these services in the civilian sector is increasing dramatically (Ward, 2009).

One method of decreasing the cost associated with providing the pregnancy care, is to keep the pregnant patient in the military treatment facility. The majority of the costs associated with child delivery (in an MTF) are a sunk cost associated with maintaining an adequate medical force capable of providing the care to the needed beneficiaries. One method to decrease the associated cost of delivery is to allocate the military providers to the locations or military treatment facilities with the highest civilian care cost for pregnancy related charges. In this thesis, the researchers will attempt to determine if the military obstetric physicians are allocated throughout Navy military treatment facilities in a way that best limits costs to the government and TRICARE.

2. TRICARE

a. Introduction

TRICARE is the military health insurance/program for United States Military active duty members, the National Guard and Reserves, retirees, their dependents and the survivors of certain former members of the military. TRICARE Management Activity (TMA) manages and controls the use of the healthcare resources and infrastructure of the military. In addition to using the military resources, TRICARE supplements the access to

care inadequacies or deficiencies of the military health system with network providers in the civilian healthcare system to ensure all enrolled TRICARE recipients have access to care as required (GAO, 2006, December).

The mission of TRICARE is “to enhance the Department of Defense and our nation's security by providing health support for the full range of military operations and sustaining the health of all those entrusted to our care” (GAO, 2006, December). The vision of TRICARE is, “to be a world-class health care system that supports the military mission by fostering, protecting, sustaining, and restoring health” (GAO, 2006, December). The balance of the two beneficiary groups, active duty members and civilian/retirees, can be contradictory and overwhelming, adding an unusual strain not usually found in other health care organizations.

b. TRICARE Infrastructure

TRICARE is managed by the TRICARE Management Activity (TMA) and was established as a Department of Defense (DOD) Field Activity of the Under Secretary of Defense for Personnel and Readiness (USD (P&R)) which operates under the authority and direction and control of the Assistant Secretary of Defense for Health Affairs (ASD(HA)) (DoD, 2003, May)

In addition to managing TRICARE, TMA manages and executes the Defense Health Program (DHP) Appropriation and the DoD Unified Medical Program and supports the Uniformed Services in the day-to-day operations of the TRICARE Program and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) (DoD, 2003, May).

The TMA uses three regional managed care support contractors (MCSC) to ensure and assist all enrollees and non-enrollees with access to an adequate network of civilian providers, which can provide the required medical care. The three TRICARE regions: North, South, and West (Figure 5) are not geographically equal, but are equally populated.

Figure 5. United States TRICARE service regions (Health-Net, 2009)

In addition to the MCSC, each region has a TRICARE Regional Office (TRO) with appointed TRO directors who are responsible for ensuring each region's network has an appropriated number of network providers and infrastructure to sustain the enrolled population with the correct number and type of providers (GAO, 2006, December).

3. TRICARE FREQUENTLY ASKED QUESTIONS

a. What is New with Maternity Care in the Military?

Beginning on 28 December 2003, pregnant women enrolled in TRICARE have more choices for their prenatal, labor, and delivery care. In 2001, Congress passed a law that allowed military beneficiaries with TRICARE Standard to choose a civilian provider for maternity care, even if they lived close to a military hospital. They no longer needed

permission (a non-availability statement) from their local military hospital to do so. However, active duty women needed to continue to obtain their care at military hospitals. (NHCP OB Department, 2009)

b. What are My Options with TRICARE?

There are two options when enrolling in TRICARE: TRICARE Prime and TRICARE Standard. One should research each option to meet their family's financial needs before enrolling (NHCP OB Department, 2009).

c. What are the Benefits of TRICARE Prime?

TRICARE Prime uses military providers and hospitals and a network of civilian providers and hospitals. There are no yearly deductibles, and co-payments for individual provider visits tend to be less than in TRICARE Standard. TRICARE Prime enrollees are assigned to either a military or a civilian healthcare provider for primary care management. The primary care manager is usually a family physician or internist. This provider takes care of routine, outpatient medical problems, and check-ups. If in-hospital or specialty care is needed, including maternity care, one must go to the military hospital if the services are available. In most cases, expectant mothers with TRICARE Prime must have their prenatal care and deliver their babies in the military hospital (NHCP OB Department, 2009).

d. What Benefits do TRICARE Standard Patients Have for Maternity Care?

Because of the 2001 Congressional law, an expectant mother with TRICARE Standard could choose a civilian doctor or midwife for her prenatal care and have her baby delivered in a civilian hospital. This option was available even if she lived near a military hospital providing maternity care. As a special benefit for expectant mothers, TRICARE pays the expenses for prenatal care, labor, and delivery. However, there is a co-payment for their hospitalization. The amount varies based on the length of stay in the

hospital and the sponsor's status. The initial newborn care is covered under this plan, because the newborn is a “dependent” of an active duty member (NHCP OB Department, 2009).

e. If Someone Has TRICARE Prime, Do They Have to Switch to TRICARE Standard to Get Civilian Maternity Care?

To receive civilian maternity care, one must disenroll from TRICARE Prime and change to TRICARE Standard. While it may be attractive to have the option of choosing civilian maternity care, there are disadvantages in disenrolling from TRICARE Prime. If one switches to TRICARE Standard, they will not be able to re-enroll in TRICARE Prime for a period of one year. During this time, if one needs medical attention other than maternity care, they will be subject to out-of-pocket expenses, such as deductibles and co-payments. Most military hospitals have the resources to take care of TRICARE Prime patients. If one has TRICARE Standard, they may be required to seek care outside the military, paying the required deductibles and co-payments. These fees may be expensive. Whether or not medical care is available to TRICARE Standard patients varies from location to location, and even for different medical specialties at the same military hospital. This situation may be confusing and sometimes results in surprising out-of-pocket expenses (NHCP OB Department, 2009).

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